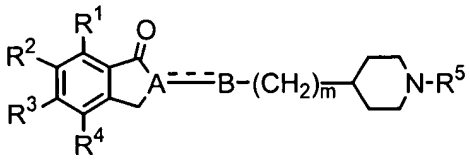
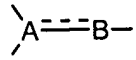
AMENDMENTS TO THE CLAIMS

1. (Withdrawn) A sigma receptor binding agent comprising an indanone compound represented by the following formula (I), a pharmacologically acceptable salt thereof or a hydrate of them.



(I)

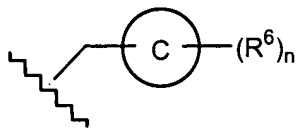
In the formula (I), R^1, R^2, R^3 and R^4 are the same as or different from each other and each represents hydrogen atom, a halogen atom, hydroxyl group, nitrile group, a C_{1-6} alkyl group which may be substituted, a cycloalkyl group having three to eight carbon atoms which may be substituted, a C_{1-6} alkoxy group which may be substituted, a cycloalkoxy group having three to eight carbon atoms which may be substituted, an acyl group having one to six carbon atoms which may be substituted, a C_{1-6} alkoxycarbonyl group which may be substituted, a C_{1-6} alkylaminocarbonyloxy group which may be substituted, a di(C_{1-6} alkyl)aminocarbonyloxy group which may be substituted, nitro group, an amino group which may be substituted, an amide group which may be substituted, mercapto group or a thio-C_{1-6} alkoxy group which may be substituted, and further R^1 with R^2, R^2 with R^3, or R^3 with R^4 may together form an aliphatic ring, an aromatic ring, a heterocyclic ring or an alkylenedioxy ring; the partial structure:



represents a group represented by >CH-CH_2-, >C=CH- or

>C(-R^7)-CH_2-; m represents an integer of 0 or 1 to 5; and R^5 represents hydrogen atom, a C_{1-6} alkyl group which may be substituted, a C_{2-6} alkenyl group which may be substituted, a C_{2-6}

alkynyl group which may be substituted, a cycloalkyl group having three to eight carbon atoms which may be substituted, a 2,2-(alkylenedioxy)ethyl group or a group represented by the formula:



(wherein the ring C represents benzene ring, an aliphatic ring or a heterocyclic ring; R^6s are the same as or different from each other and each represents hydrogen atom, a halogen atom, hydroxyl group, nitrile group, a C_{1-6} alkyl group which may be substituted, a C_{2-6} alkenyl group which may be substituted, a C_{2-6} alkynyl group which may be substituted, a cycloalkyl group having three to eight carbon atoms which may be substituted, a C_{1-6} alkoxy group which may be substituted, a C_{1-6} alkoxyalkoxy group which may be substituted, an aryloxy group which may be substituted or an aralkyloxy group which may be substituted, and further two of R^6s may together form an aliphatic ring, an aromatic ring, a heterocyclic ring or an alkylenedioxy ring; R^7 represents a halogen atom, hydroxyl group, a C_{1-6} alkyl group, a C_{1-6} alkoxy group, nitrile group, a halogeno-C_{1-6} alkyl group, a hydroxyl-C_{1-6} alkyl group, a cyano-C_{1-6} alkyl group, an amino-C_{1-6} alkyl group, nitro group, azide group, an amino group which may be substituted, carbamoyl group which may be substituted, carboxyl group which may be substituted, mercapto group or a thio-C_{1-6} alkoxy group; and n represents an integer of 1 to 5), provided that 1-benzyl-4-[(5,6-dimethoxy-1-indanon)-2-yl]methylpiperidine, a pharmacologically acceptable salt thereof or a hydrate of them are excluded.

2. (Withdrawn) The sigma receptor binding agent comprising an indanone compound, a pharmacologically acceptable salt thereof or a hydrate of them according to claim 1, wherein the indanone compound represented by the formula (I) is one selected from:

(1) 1-benzyl-4-[(5,6-dimethoxy-1-indanon)-2-ylidene]methylpiperidine,

(2) 1-benzyl-4-[(5,6-diethoxy-1-indanon)-2-ylidene]methylpiperidine,

(3) 1-benzyl-4-[(1-indanon)-2-yl]methylpiperidine,

(4) 1-benzyl-4-[(5-methoxy-1-indanon)-2-yl]methylpiperidine,

(5) 1-benzyl-4-[(5-ethoxy-6-methoxy-1-indanon)-2-yl]methylpiperidine,

(6) 1-benzyl-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(7) 1-benzyl-4-[[5,6-di(1-propyloxy)-1-indanon)-2-yl]methylpiperidine,

(8) 1-benzyl-4-[2-[(5,6-dimethoxy-1-indanon)-2-yl]ethyl]piperidine,

(9) 1-benzyl-4-[3-[(5,6-dimethoxy-1-indanon)-2-yl]propyl]piperidine,

(10) 1-(3-fluorobenzyl)-4-[(5,6-dimethoxy-1-indanon)-2-yl]methylpiperidine,

(11) 1-(3-methylbenzyl)-4-[(5,6-dimethoxy-1-indanon)-2-yl]methylpiperidine,

(12) 1-cyclohexylmethyl-4-[(5,6-dimethoxy-1-indanon)-2-yl]methylpiperidine,

(13) 1-benzyl-4-[(2-fluoro-1-indanon)-2-yl]methylpiperidine,

(14) 1-benzyl-4-[(5-methoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(15) 1-benzyl-4-[(5,6-dimethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(16) 1-benzyl-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(17) 1-benzyl-4-[[5,6-di(1-propyloxy)-2-fluoro-1-indanon]-2-yl]methylpiperidine,

(18) 1-benzyl-4-[(5,6-dimethoxy-2-fluoro-1-indanon)-2-yl]piperidine,

(19) 1-benzyl-4-[2-[(5,6-dimethoxy-2-fluoro-1-indanon)-2-yl]ethyl]piperidine,

(20) 1-benzyl-4-[3-[(5,6-dimethoxy-2-fluoro-1-indanon)-2-yl]propyl]piperidine,

(21) 1-(2-fluorobenzyl)-4-[(5,6-dimethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(22) 1-(3-fluorobenzyl)-4-[(5,6-dimethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(23) 1-(4-fluorobenzyl)-4-[(5,6-dimethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(24) 1-(3-methylbenzyl)-4-[(5,6-dimethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(25) 1-cyclohexylmethyl-4-[(5,6-dimethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(26) 1-benzyl-4-[(5,6-dimethoxy-2-chloro-1-indanon)-2-yl]methylpiperidine,

(27) 1-benzyl-4-[(5,6-diethoxy-2-chloro-1-indanon)-2-yl]methylpiperidine,

(28) 1-benzyl-4-[(5-ethoxy-6-methoxy-2-chloro-1-indanon)-2-yl]methylpiperidine,

(29) 1-benzyl-4-[(5,6-dimethoxy-2-bromo-1-indanon)-2-yl]methylpiperidine, and

(30) 1-benzyl-4-[(5,6-dimethoxy-2-methyl-1-indanon)-2-yl]methylpiperidine.

3. (Withdrawn) The sigma receptor binding agent according to claim 1 or 2, which is a sigma receptor antagonist or a sigma receptor agonist.

4. (Withdrawn) The sigma receptor binding agent according to claim 1 or 2, which is an agent for preventing, treating or improving a disease against which a sigma receptor agonistic drug is efficacious.

5. (Withdrawn) The sigma receptor binding agent according to claim 1 or 2, which is an agent for preventing, treating or improving a disease against which a sigma receptor antagonistic action is efficacious.

6. (Withdrawn) The sigma receptor binding agent according to claim 1 or 2, which is an agent for preventing, treating or improving a disease against which a sigma receptor agonistic action is efficacious.

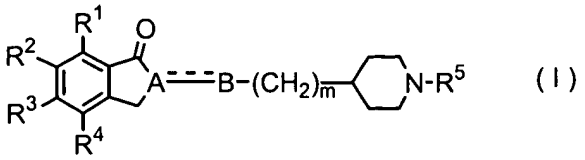
7. (Withdrawn) The sigma receptor binding agent according to claim 1 or 2, which is an agent for preventing, treating or improving a mental disorder.

8. (Withdrawn) The sigma receptor binding agent according to claim 7, wherein the mental disorder is at least one selected from a disorder accompanied with cerebrovascular dementia and/or senile dementia, schizophrenia, emotional disorder, depression, neurosis, psychophysiologic disorder and anxiety.

9. (Withdrawn) The sigma receptor binding agent according to claim 8, wherein the disorder accompanied with cerebrovascular dementia and/or senile dementia is at least one selected from aggressive behavior, mental excitement, wandering, delirium, hallucination and hyperkinesis.

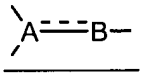
10. (Withdrawn) The sigma receptor binding agent according to claim 1 or 2, which is an agent for improving intellectual function.

11. (Currently Amended) An indanone compound represented by the following formula (I) or a pharmacologically acceptable salt thereof:

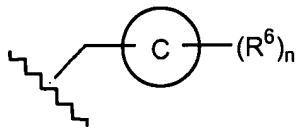


(I)

wherein R^1, R^2, R^3 and R^4 are the same as or different from each other and each represents hydrogen atom, a halogen atom, hydroxyl group, nitrile group, a C_{1-6} alkyl group which may be substituted, a cycloalkyl group having three to eight carbon atoms which may be substituted, a C_{1-6} alkoxy group which may be substituted, a cycloalkoxy group having three to eight carbon atoms which may be substituted, an acyl group having one to six carbon atoms which may be substituted, a C_{1-6} alkoxycarbonyl group which may be substituted, a C_{1-6} alkylaminocarbonyloxy group which may be substituted, a di(C_{1-6} alkyl)aminocarbonyloxy group which may be substituted, nitro group, an amino group which may be substituted, an amide group which may be substituted, mercapto group or a thio-C_{1-6} alkoxy group which may be substituted, and further R^1 with R^2, R^2 with R^3, or R^3 with R^4 may together form an aliphatic ring, an aromatic ring, a heterocyclic ring or an alkylenedioxy ring; the partial structure:



represents a group represented by >CH-CH_2-, >C=CH- or >C(-R^7)-CH_2-; m represents an integer of 0 or 1 to 5; and R^5 represents hydrogen atom, a C_{1-6} alkyl group which may be substituted, a C_{2-6} alkenyl group which may be substituted, a C_{2-6} alkynyl group which may be substituted, a cycloalkyl group having three to eight carbon atoms which may be substituted, a 2,2-(alkylenedioxy)ethyl group or a group represented by the formula:



wherein the ring C represents benzene ring, an aliphatic ring or a heterocyclic ring; R^6s are the same as or different from each other and each represents hydrogen atom, a halogen atom, hydroxyl group, nitrile group, a C_{1-6} alkyl group which may be substituted, a C_{2-6} alkenyl group which may be substituted, a C_{2-6} alkynyl group which may be substituted, a cycloalkyl group having three to eight carbon atoms which may be substituted, a C_{1-6} alkoxy group which may be substituted, a C_{1-6} alkoxyalkoxy group which may be substituted, an aryloxy group which may be substituted or an aralkyloxy group which may be substituted, and further two of R^6s may together form an aliphatic ring, an aromatic ring, a heterocyclic ring or an alkylenedioxy ring; R^7 represents a halogen atom, hydroxyl group, a C_{1-6} alkyl group, a C_{1-6} alkoxy group, nitrile group, a halogeno-C_{1-6} alkyl group, a hydroxyl-C_{1-6} alkyl group, a cyano-C_{1-6} alkyl group, an amino-C_{1-6} alkyl group, nitro group, azide group, an amino group which may be substituted, carbamoyl group which may be substituted, carboxyl group which may be substituted, mercapto group or a thio-C_{1-6} alkoxy group; and n represents an integer of 1 to 5, provided that 1-benzyl-4-[(5,6-dimethoxy-1-indanon)-2-yl]methylpiperidine, a pharmacologically acceptable salt thereof or a hydrate of them are excluded;

~~The indanone compound represented by the formula (I) according to claim 1, a pharmacologically acceptable salt thereof or a hydrate of them,~~ wherein the indanone compound is one selected from:

(1) 1-benzyl-4-[[5,6-(1,2-ethylenedioxy)-1-indanon]-2-ylidene]methylpiperidine,

(2) 1-benzyl-4-[(5-cyclohexyl-1-indanon)-2-ylidene]methylpiperidine,

(3) 1-benzyl-4-[(5-cyclohexyloxy-6-methoxy-1-indanon)-2-ylidene]methylpiperidine,

(4) 1-benzyl-4-[[5-methoxy-6-(2-propyloxy)-1-indanon]-2-ylidene]methylpiperidine,

(5) 1-benzyl-4-[[5,6-(1,2-ethylenedioxy)-1-indanon]-2-yl]methylpiperidine,

(6) 1-benzyl-4-[[5,6-cyclohexyl-1-indanon]-2-yl]methylpiperidine,

(7) 1-benzyl-4-[(5-cyclohexyloxy-6-methoxy-1-indanon)-2-yl]methylpiperidine,

(8) 1-benzyl-4-[[5-methoxy-6-(2-propyloxy)-1-indanon]-2-yl]methylpiperidine,

(9) 1-benzyl-4-[(6-ethoxy-5-methoxy-1-indanon)-2-yl]methylpiperidine,

(10) 1-benzyl-4-[[6-methoxy-5-(1-propyloxy)-1-indanon]-2-yl]methylpiperidine,

(11) 1-benzyl-4-[(5-cyanomethoxy-6-methoxy-1-indanon)-2-yl]methylpiperidine,

(12) 1-cyclopentylmethyl-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(13) 1-cyclohexylmethyl-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(14) 1-cycloheptylmethyl-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(15) 1-cyclooctylmethyl-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(16) 1-(2-fluorobenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(17) 1-(3-fluorobenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(18) 1-(4-fluorobenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(19) 1-(2-chlorobenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(20) 1-(3-chlorobenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(21) 1-(4-chlorobenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(22) 1-(2-methylbenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(23) 1-(3-methylbenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(24) 1-(4-methylbenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(25) 1-benzyl-4-[(6-ethoxy-5-methoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(26) 1-benzyl-4-[(5-ethoxy-6-methoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(27) 1-benzyl-4-[[6-methoxy-5-(1-propyloxy)-2-fluoro-1-indanon]-2-yl]methylpiperidine,

(28) 1-(2-fluorobenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(29) 1-(3-fluorobenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(30) 1-(4-fluorobenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(31) 1-(2-chlorobenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(32) 1-(3-chlorobenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(33) 1-(4-chlorobenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(34) 1-(2-methylbenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(35) 1-(3-methylbenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(36) 1-(4-methylbenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(37) 1-cyclopentylmethyl-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(38) 1-cyclohexylmethyl-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(39) 1-cycloheptylmethyl-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(40) 1-cyclooctylmethyl-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(41) 1-benzyl-4-[(5-cyanomethoxy-6-methoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine,

(42) 1-(3,4-difluorobenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(43) 1-(3,5-difluorobenzyl)-4-[(5,6-diethoxy-1-indanon)-2-yl]methylpiperidine,

(44) 1-(3,4-difluorobenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine, and

(45) 1-(3,5-difluorobenzyl)-4-[(5,6-diethoxy-2-fluoro-1-indanon)-2-yl]methylpiperidine.

12. (Currently Amended) A pharmaceutical composition comprising the indanone compound according to claim 11[[,]] or a pharmacologically acceptable salt thereof ~~or a hydrate of them~~.

13. (Cancelled)

14. (Cancelled)

15. (Currently Amended) A method for treatment of ~~The pharmaceutical composition according to claim 12, which is an agent for preventing, treating or improving~~ a disease against which a sigma receptor-active drug is efficacious comprising administering a therapeutically effective amount of the pharmaceutical composition according to claim 12.

16. (Withdrawn) The pharmaceutical composition according to claim 12, which is an agent for preventing, treating or improving a disease against which a sigma receptor antagonistic action is efficacious.

17. (Withdrawn) The pharmaceutical composition according to claim 12, which is an agent for preventing, treating or improving a disease against which a sigma receptor agonistic action is efficacious.

18. (Currently Amended) A method for treatment of ~~The pharmaceutical composition according to claim 12, which is an agent for preventing, treating or improving~~ a mental disorder comprising administering a therapeutically effective amount of the pharmaceutical composition according to claim 12.

19. (Currently Amended) The method for treatment ~~pharmaceutical composition~~ according to claim 18, wherein the mental disorder is at least one selected from a disorder accompanied with cerebrovascular dementia and/or senile dementia, schizophrenia, emotional disorder, depression, neurosis, psychosomatic disorder and anxiety.

20. (Currently Amended) The method for treatment ~~pharmaceutical composition~~ according to claim 19, wherein the disorder accompanied with cerebrovascular dementia and/or senile dementia is at least one selected from aggressive behavior, mental excitement, wandering, delirium, hallucination and hyperkinesis.

21. (Cancelled)

22. (Original) The pharmaceutical composition according to claim 12, which is an acetylcholinesterase inhibitor.

23. (Currently Amended) A method for treatment of a condition selected from ~~The pharmaceutical composition according to claim 12, which is an agent for preventing, treating or improving~~ senile dementia, cerebrovascular dementia, attention-deficit hyperactivity disorder, glaucoma, myasthenia gravis or migraine comprising administering a therapeutically effective amount of the pharmaceutical composition according to claim 12.

24. (Currently Amended) The method for treatment ~~pharmaceutical composition~~ according to claim 23, wherein the senile dementia is Alzheimer-type dementia.

25. (Withdrawn) A method for preventing, treating or improving a disease against which a sigma receptor binding action is efficacious, which comprises administering a pharmacologically effective amount of the indanone compound represented by the formula (I) according to claim 1, a pharmacologically acceptable salt thereof or a hydrate of them to a patient.

26. (Cancelled)

27. (Withdrawn) A method for preventing, treating or improving a disease against which a sigma receptor binding action is efficacious, which comprises administering a pharmacologically effective amount of the indanone compound according to claim 11, a pharmacologically acceptable salt thereof or a hydrate of them to a patient.

28. (Cancelled)